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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/655,134	09/05/2000	Neal A. Benkofske	1396.001US1	7544
21186	7590	01/20/2004	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			NGUYEN, THUKHANH T	
			ART UNIT	PAPER NUMBER
			1722	

DATE MAILED: 01/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/655,134

Applicant(s)

BENKOFKSKE ET AL.

Examiner

Thu Khanh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10-11, 16-21, 26-28 and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tucker et al (5,614,312) in view of Osada et al (5,507,633), or over Osada ('633) in view of Tucker et al ('312).

Tucker et al disclose a wet-laid sheet material prepared a preform from thermoplastic fibers, graphite particles, reinforcing fibers, and microglass fibers for used in making compression molded plaques. The preform comprises thermoplastic fibers, 20-70 weight percent graphite particles, 5-20 weight percent reinforcing fibers, and 0.5-3 weight percent microglass fibers (col. 2, lines 35-53), wherein the preform is heated, dried and formed in a compression molding press (col. 4, lines 8-28). Tucker et al fails to disclose a first and second platen to form first and second molding cavity, a plurality of heating elements embedded in the platens, an ejection device and a vacuum manifold.

Osada et al teach a resin molding apparatus comprising an upper and a lower mold plate (7, 8) with a first and a second mold cavity portions (10, 20), heaters (5, 6, 21) embedded in the upper and lower mold, means for pressing the upper and lower mold plate (31, 34; col. 17, lines 22-31), a plurality of ejector pins (22a, 65) mounted on a separate ejector plates (12, 22), a vacuum source (col. 12, lines 34) for providing the vacuum in the cavities during the molding

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process (col. 12, lines 13-19). Osada fails to disclose a preform comprising a thermosetting resin and about 50 wt% of graphite filler material.

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Tucker et al by providing a press having an upper and lower mold plates to form a mold cavity, an embedded heating means, an ejector device and a vacuum source as taught by Osada et al, because the press with all these feature could be used to form a thermoplastic preform into a final molded product.

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Osada et al by providing a preform having up to 70 wt% of graphite particles as taught by Tucker et al, because this material would improve the thermal and electrical conductivity capabilities in different applications such as heat sink, transformer, encapsulation electrical devices.

In regard to the thinner web area formed on the molded plate, it will depend on the desired product that the gap between the upper and lower platens could be changed. It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to vary the gap to form a product having a desired thickness.

3. Claims 12-15, 22-25, 29, and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tucker et al and Osada as applied to claims 10-11, 16-21, 26-28 and 30-34 above, and further in view of Swanson (4,751,029).

Osada et al disclose a molding apparatus as applied above, but fail to disclose a temperature sensor to control the heating temperature of the mold plates and a portion of the mold cavity are formed from steel coated with Teflon.

Swanson discloses an apparatus for molding thermoplastic material, comprising a mold made of steel (col. 5, lines 60-62), a mold cavity having a dam (38) made of Teflon (col. 6, lines 22-24) for wear resistant, and a plurality of thermal sensors for automatically controlling the heating of the mold plates (col. 8, lines 47-52).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify Osada et al by providing a plurality of thermal sensors and a mold cavity having mold parts made of steel and Teflon coated as taught by Swanson, because the thermal sensors would facilitate the temperature control of the mold plate, while the mold parts made of steel is to improve thermal conductivity and the Teflon coating is to reduce friction and improve wear resistant to the mold parts.

Response to Arguments

4. Applicant's arguments with respect to claims 10-37 have been considered but are moot in view of the new ground(s) of rejection.

Tucker et al disclose a preform to be used in a compression molding process including a thermosetting resin (microglass fibers) and at least 50 wt% (70%) of graphite particles in order to improve the thermal and electrical conductivities of the molded product.

Osada and Swanson disclose basic molding apparatus for forming the preformed sheet material into a molded product, in which the apparatus includes an upper and lower mold platens

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to form a mold cavity, a heating means embedded in the mold platens to facilitate the curing of the material during the molding process, a vacuum means, a plurality of ejector pins, thermal sensors, and a Teflon coating.

The applicants have argued that Osada and Swanson fail to disclose that the preform comprising a thermosetting resin and at least 50 wt% of graphite material. This limitation is newly added to the claims and was not consider in the previous Office Action. New reference Tucker et al (5,614,312) is enclosed to show that this feature has already taught by prior art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Khanh T. Nguyen whose telephone number is 571-272-1136. The examiner can normally be reached on Monday- Friday, 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

TN


ROBERT DAVIS
PRIMARY EXAMINER
GROUP 1300 1700

1/12/04